A Method for Enhancing the Flow of Electrical Charges in Micro-geologic Structures

[1] No Federal sponsorship was involved in the development of this invention.

[2] **Background of the Invention**

[3] This invention related to electrical and electronic engineering and systems for protecting electrically sensitive equipment from the adverse effects of localized electrical imbalances.

[4] The recent advent of cheap and easy to build Electro-Magnetic Pulse (EMP) weapons, of enormous power, gives rise to the possibility that such devices, in the hands of terrorists and/or criminals, will pose a threat to the kinds of electrically sensitive equipment that makes up much of our technological infrastructure.

[5] Detonated at or near ground level and in the vicinity of a computer center, or telecommunications exchange, such a device can create a powerful "tidal

wave" of electrical charge traveling outward through the ground that is capable of turning any electrically sensitive devices in the area into expensive junk.

[6] In electrical terms, the Earth is considered a general and global conductor of electrical charge. Among electrical and electronic engineers, the Earth is considered the final drain for all electrical charges and hence is referenced as the "neutral", the "ground", or the "earth", in all cases of electrical and electronic engineering. Almost every electrical and electronic artifact is connected to the "ground" as a final drain for all electrical charges, or as a zero reference point for measuring the electrical charge in a place or artifact. The Earth, and its micro-geologic structures, are not always homogenous and effective conductors of electrical charges. Scientists such as Franklin, Faraday, Ampere, and others, have shown that even in good electrical conductors, electrical charges can be concentrated in certain regions of the conducting medium.

[7] The micro-geologic structures near the surface of the Earth where we live and build consist of powdered rock of varying granularity, rocks, biological products, minerals, salts, water, and other miscellaneous materials. The electrical conductivity of this geology varies from place to place, even

places inches apart. The ability of the Earth to dissipate a concentrated electrical charge is directly proportional to the electrical connectivity of the micro-geologic structures. Since many structures and artifacts are connected to the Earth these structures and artifacts can be adversely affected by sudden changes of electrical charge in the micro-geologic regions that surround them.

[8] This invention creates a more conductive, and more predictive path, around and away from a selected region, for the flow of adverse electrical charges that can develop in micro-geologic regions due to the detonation of EMP weapons at or near ground level.

[9] **Statement of Prior Art**

[10] Although not related to this art, certain prior art does attempt to control the flow of electrical charges in certain designated micro-geologic regions by attracting significant electrical charges, in the form of lightning, to the space the art is trying to protect. These so-called lightning arrestors function by encouraging lightning to strike a selected conductor and thereby pass enormous electrical currents and their related electromagnetic

fluctuations, through the protected space. Some of the prior art that does this are:

Inventor	Patent Number
Prescott	303,591
Kretzer	1,098,738
Dodd	1,155,658
Gunthorpe	1,175,749
Carpenter	4,180,698
Briet	5,365,398

[11] All these devices require at least one sharply pointed conductor positioned so as to create an electrical stream between the electrically imbalanced earth and the electrically imbalanced storm clouds above, as a result these devices would probably attract the massive electrical fluctuations of a potentially destructive EMP electrical discharge into the grounding systems of a region or artifact or, at least into the electrical riser systems of the region or artifact.

[12] The purpose of the method of this invention is to move potentially destructive electrical imbalances away from the protected region.

Brief Summary of the Invention

[13] This invention provides an enhanced path for electrical charges by using a more conductive material placed around a selected geological region of less conductive ability. In the event of a sudden electrical imbalance in or near the micro-geologic region protected by this invention, the conductor embedded in the ground will offer the flow of electrons a path of less resistance away from and around a protected micro-geologic region and any artifact within the protected space.

[14] **Brief Description of the Drawings**

[15] Figure 1 is a conceptual diagram of the invention. A conductive material (item 1) forms a perimeter of the selected micro-geologic region (item 2) at or below the surface of the ground (item 3). A possible artifact (item 4) such as a building could be partially buried in the selected micro-geologic region.

[16] Figure 2 is an electrical schematic of the invention. The invention uses a conductive material in close physical contact with the surrounding micro-geologic region and is grounded (electrical term) by physical contact with the local geology in one place or in a plurality of places.

[17] **Detailed Description of the Invention**

[18] In any selected micro-geologic region the conductivity of the subsoil varies from place to place, sometimes with great differential in places just inches apart. The method of this invention calls for artificially creating a less conductive path around a selected micro-geologic region that will completely enclose the protected region and provide a path of less resistance, around and away from the selected region, for dangerous subsurface electrical charges.

[19] In order to accomplish this a conductor of convenient material is introduced into the soil of the selected region at a convenient depth so as to form a continuous region of less electrical resistance.

[20] Electrical imbalances outside the protected region will, by the presence of a less resistive path, be encouraged due to a path of less electrical resistance, to travel around the protected region and electrical imbalances within the protected region will be encouraged due to the availability of a path of less resistance to move out to the conductive path provided by the method of this invention.